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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/332,103	06/14/1999	KENTARO YANO	8622868	2516

5514 7590 12/28/2004

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EXAMINER

LAROSE, COLIN M

ART UNIT PAPER NUMBER

2623

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/332,103

Applicant(s)

YANO ET AL.

Examiner

Colin M. LaRose

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Arguments and Amendments

1. Applicants' amendments and arguments filed 16 July 2004, have been entered and made of record.

Response to Amendments and Arguments

2. Applicant's arguments regarding claims 1, 2, and 7 (see pages 9 and 10 of Applicant's Response) have been fully considered. However, the claims are still believed to be anticipated by Shimada.

Applicant has amended claims 1, 2, and 7 to denote that, "one pixel of the image data is quantized so as to be able to record one pixel with 5 or more levels..."

Applicant asserts that Shimada does not teach this limitation because in figure 18 of Shimada, "it can be clearly seen that each pixel of the 5 x 5 grid is printed with one of the three levels" (page 9 of Applicant's Response). Applicant has misinterpreted figure 18 of Shimada. The 5 x 5 grid is of high- and low-density dots, not pixels. Each 5 x 5 grid represents a target pixel. So it is clear that the first and second quantizations of Shimada quantize one pixel with 5 or more levels using both recording means, as claimed. The high- and low-density dots, in combination, are capable of producing many more than 5 levels.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent 5,795,082 by Shimada et al. ("Shimada").

Regarding claim 1, Shimada discloses a quantization method (figure 12) in which quantization processing is applied to data for first and second recording means (figure 5, C1 and C2: low- and high-density cyan) which record input image data in a plurality of gradations which belong to each of different gradations in substantially the same hue, comprising the steps of:

inputting multi-value level image data (S100, figure 12);

a first quantization step (S140, figure 12) of performing quantization of the image data input for the first recording means to data with 3 or more levels which are lower than that of the input image data, the first quantization step performing the quantization by conducting error correction (column 13, lines 56-67 and figure 17: quantizing the image data into low density dots is done by error diffusion); and

a second quantization step (S120, figure 12) of performing quantization of the image data input for the second recording means to data with 3 or more levels which are lower than that of the input image data, the first quantization step performing the quantization without conducting error correction (column 12, lines 40-47 and figure 15: quantizing the image data into high density dots is done by dithering),

wherein at least one of the first and second quantization steps performs quantization of the input image data of one pixel (i.e. figure 12 is a process for one pixel) to multi-value data with 3 or more levels, so that the corresponding one of the first and second recording means may record the image in a plurality of gradations (both quantization steps quantize the image data of

Art Unit: 2623

one pixel into one of 26 levels – as shown figure 18, the input image data is quantized from 256 levels to one of 26 levels of light dots and one of 26 levels of dark dots; that is, a 5x5 matrix of light and dark dots is generated for each value of input image data, wherein the number of each of light and dark dots ranges from 0 to 25),

wherein in the first and second quantization steps; one pixel of the image data is quantized so as to be able to record one pixel with 5 or more levels and upon recording with a predetermined level of the 5 or more levels (figure 18 shows examples of 8 different quantization levels for a pixels), both of the first recording means and the second recording means are used (i.e. both low and high density dots are utilized), and

wherein the first recording means records the image with lower density recording material than that used by the second recording means (i.e. first recording means uses light dots, and second recording means uses dark dots).

Shimada also discloses the corresponding apparatus and storage medium of claims 2 and 7, which are substantially the same in scope as claim 1.

Regarding claim 3, Shimada discloses the recording means are of an ink-jet system (e.g. figure 4).

Regarding claim 4, Shimada discloses the first and second recording means record the image with light and black (i.e. dark) ink (“C1” and “C2” in figure 5).

Regarding claim 5, Shimada discloses the size of the ink drop is controlled when the first and second recording means effect recording in a plurality of gradations (i.e. Shimada’s

Art Unit: 2623

recording means controls the size of the ink drops so that the drops are uniform as shown in figure 18).

Regarding claim 6, Shimada discloses the first and second recording means share a region in which both means effect recording while both raising recording levels (e.g. figure 18).

Regarding claims 8-10, Shimada discloses the first quantization uses error diffusion, and the second quantization uses dithering, as addressed above for claim 1.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (703) 306-3489. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia

Application/Control Number: 09/332,103

Page 6

Art Unit: 2623

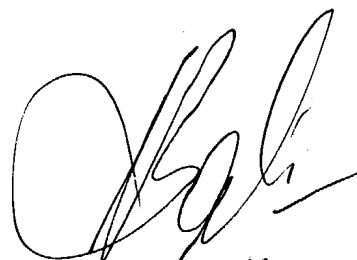
Au, can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (703) 306-0377.

CML

Group Art Unit 2623

17 December 2004



VIKRAM BALI
PRIMARY EXAMINER